

What is claimed is:

1. A vehicle drive train assembly comprising:
a source of rotational power;
at least one rotatably driven vehicle wheel; and
5 a male splined member and a female splined member which are connected between the source of rotational power and the at least one vehicle wheel to transmit rotational power therebetween, wherein at least one of the splined members is a driveshaft, the splines of the male splined member having side surfaces which are convex in shape and outer surfaces which are convex in shape, the convex splines of
10 the male splined member cooperating with the splines of the female splined member to connect the splined members together in a manner that allows for limited angular and axial movement therebetween, wherein the angular movement is caused at least in part by up or down movement of the at least one vehicle wheel during operation of the vehicle.

2. The drive train assembly defined in Claim 1 wherein the convex splines are shaped to allow a joint angle between the male splined member and the female splined member of at least about 3°.

3. The drive train assembly defined in Claim 1 wherein the convex splines are generally elliptical in shape.

4. The drive train assembly defined in Claim 1 wherein the male splined member is the driveshaft, and wherein the convex splines are located on an end
25 portion of the driveshaft.

5. The drive train assembly defined in Claim 4 wherein the driveshaft includes an end piece and a main tubular portion, the end piece including the male splined end portion, a tube seat portion which is attached to the main tubular portion, and a neck portion between the male splined end portion and the tube seat portion, the neck portion having a diameter which is less than the diameters of both the male splined end portion and the tube seat portion.

6. The drive train assembly defined in Claim 5 wherein the male splined end portion is made from a material which is different from the material used to make the neck portion and the tube seat portion.

7. The drive train assembly defined in Claim 5 wherein the male splined end portion has a diameter which is smaller than the diameter of the tube seat portion.

8. The drive train assembly defined in Claim 5 wherein the tube seat portion is hollow.

9. The drive train assembly defined in Claim 1 further comprising a seal which covers the connection between the male splined member and the female splined member.

10. The drive train assembly defined in Claim 1 further comprising a rotatably driven front axle and a rotatably driven rear axle, the at least one vehicle wheel including front and rear vehicle wheels mounted on the front and rear axles, respectively, and further comprising a transfer case which transmits rotational power from the source of rotational power to the front and rear axles, wherein a first one of the splined members is the driveshaft which is connected between the transfer case and the front axle, and a second one of the splined members is provided on either the transfer case or the front axle.

11. A vehicle drive train assembly comprising:

a source of rotational power;

at least one rotatably driven vehicle wheel; and

a male splined driveshaft and a female splined member which are connected

between the source of rotational power and the at least one vehicle wheel to transmit rotational power therebetween, the driveshaft including a main tubular portion, a male splined end portion, and a neck portion between the male splined end portion and the main tubular portion, the neck portion having a diameter which is less than the diameters of both the male splined end portion and the main tubular portion, the splines of the male splined member having side surfaces which are convex in shape and outer surfaces which are convex in shape, the convex splines of the male splined member cooperating with the splines of the female splined member to connect the splined members together in a manner that allows for limited angular and axial movement therebetween.

12. The drive train assembly defined in Claim 11 wherein the convex splines are shaped to allow a joint angle between the male splined member and the female splined member of at least about 3°.

13. The drive train assembly defined in Claim 11 wherein the convex splines are generally elliptical in shape.

14. The drive train assembly defined in Claim 11 wherein the driveshaft includes the main tubular portion and an end piece attached to the main tubular portion, the end piece including the male splined end portion, a tube seat portion which is attached to the main tubular portion, and the neck portion between the male splined end portion and the tube seat portion.

15. The drive train assembly defined in Claim 11 further comprising a rotatably driven front axle and a rotatably driven rear axle, the at least one vehicle wheel including front and rear vehicle wheels mounted on the front and rear axles, respectively, and further comprising a transfer case which transmits rotational power from the source of rotational power to the front and rear axles, wherein the male splined driveshaft is connected between the transfer case and the front axle, and the female splined member is provided on either the transfer case or the front axle.

16. A vehicle drive train assembly comprising:
a source of rotational power;
at least one rotatably driven vehicle wheel; and
a male splined member and a female splined member which are connected between the source of rotational power and the at least one vehicle wheel to transmit rotational power therebetween, wherein at least one of the splined members is a driveshaft which is located completely outside of the source of rotational power, the splines of the male splined member having side surfaces which are convex in shape and outer surfaces which are convex in shape, the convex splines of the male splined member cooperating with the splines of the female splined member to connect the splined members together in a manner that allows for limited angular and axial movement therebetween.

17. The drive train assembly defined in Claim 16 wherein the male splined member is the driveshaft.

18. The drive train assembly defined in Claim 17 wherein the driveshaft includes an end piece and a main tubular portion, the end piece including a male splined end portion, a tube seat portion which is attached to the main tubular portion, and a neck portion between the male splined end portion and the tube seat portion, the neck portion having a diameter which is less than the diameters of both the male splined end portion and the tube seat portion.

19. The drive train assembly defined in Claim 16 wherein the driveshaft is a propeller shaft.

20. The drive train assembly defined in Claim 16 further comprising a rotatably driven front axle and a rotatably driven rear axle, the at least one vehicle wheel including front and rear vehicle wheels mounted on the front and rear axles, respectively, and further comprising a transfer case which transmits rotational power from the source of rotational power to the front and rear axles, wherein a first one of the splined members is the driveshaft which is connected between the transfer case and the front axle, and a second one of the splined members is provided on either the transfer case or the front axle.